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Pacific Northwest National Laboratory Climate Change in National Environmental Policy Act (NEPA) Reviews and Decision Support

Per 2014 Council of Environmental Quality (CEQ) guidance, NEPA reviews must now consider, and address the implications of climate change. Two different aspects of climate change must be considered:

- ▶ the proposed action's greenhouse gas (GHG) budget, and
- ▶ the effect of climate change on the baseline environment and how changes in the baseline would alter impacts of the proposed action.

Evaluating a proposed action's GHG budget involves a relatively straightforward accounting of the direct GHG contribution and a possibly less straightforward accounting of the indirect GHG contribution. However, evaluating the effects of climate change on the baseline environment, and on the incremental impacts of the proposed action, is substantially more complex.

Previously, NEPA reviews considered the affected environment as stationary over time. However, the 2014 CEQ guidance and the climate science community are in agreement that U.S. federal agencies should consider that the climate may substantially change in the future. Disputes as to the anthropogenic contribution to climate change and technical uncertainty in the magnitude and rate of climatic change may continue; however, the reality of climate change is no longer in dispute. Decision-makers must now consider that the environmental baseline is ever-changing and require that alterations to the existing environment due to climate change be addressed in NEPA analyses and proposed action decisions. This dictates a shift from earlier understandings and the previous objective of preserving the existing environment.



U.S. DEPARTMENT OF
ENERGY

Scientists at Pacific Northwest National Laboratory (PNNL) have been international contributors to climate change science since the 1980s. Much of PNNL’s state-of-the-science leading research has focused on the regional scale assessments. For decades, NEPA practitioners at PNNL have developed and applied a suite of innovative methods to inform NEPA reviews, critical infrastructure protection assessments, and adaptive management of resources.

PNNL scientists recently supported the U.S. Nuclear Regulatory Commission with a NEPA analysis that considered both aspects of climate change in the Environmental Impact Statement (EIS) for Combined Licenses for Turkey Point Nuclear Plant Units 6 and 7 in southern Florida.

PNNL EXAMPLES OF NEPA PRODUCTS

Client	Project Examples
U.S. Department of Energy	<ul style="list-style-type: none"> ▶ Remediation of Uranium Mill Tailings EIS, Moab, UT ▶ Western Area Power Administration Energy Planning and Management Program EIS ▶ Wind Turbine Demonstration Project Environmental Assessment (EA) ▶ Yucca Mountain Repository EIS ▶ Repository Supplemental EIS ▶ Nevada Rail Corridor Supplemental EIS ▶ Nevada Rail Alignment EIS ▶ Crystalline Repository Siting
U.S. Nuclear Regulatory Commission	<ul style="list-style-type: none"> ▶ License Renewal ▶ New Reactor Licensing ▶ Decommissioning ▶ Continued Storage of Spent Nuclear Fuel
Bureau of Indian Affairs	<ul style="list-style-type: none"> ▶ Flathead Lake Drought Management Plan EIS ▶ Chiloquin Dam Removal EA
U.S. Department of Defense	<ul style="list-style-type: none"> ▶ Pegasus Air-Launched Space Booster EA ▶ Bio-Defense-Related Activities EA ▶ Phalanx Weapons System Test EA ▶ Solar Energy Installation Programmatic EA
Federal Energy Regulatory Commission	<ul style="list-style-type: none"> ▶ Spokane River/Post Falls Hydroelectric Project License Renewal EIS ▶ Grays Harbor Pipeline Project

Adaptive management is a systematic, rigorous, and scientifically defensible approach for learning from the outcomes of management actions, accommodating change, and improving management. PNNL has aggressively led the incorporation of climate-informed adaptive management strategies consistent with the intention of NEPA. For agencies faced with complex resource-management assessments, these approaches provide a technically feasible strategy.

PNNL provides a suite of innovative, customizable approaches that incorporate climate change effects into any NEPA review. The approach aligns with the time frame and scope of the proposed action. Further, the approach explicitly acknowledges and accounts for climate change and climatic impacts in relation to the affected environment and the proposed action.

ABOUT PNNL

PNNL is a DOE National Laboratory located in Richland, Washington. PNNL employs more than 4,400 staff and conducts more than \$1 billion in critical national research annually. Since its founding, PNNL has been a strong partner to the U.S. Nuclear Regulatory Commission, U.S. Department of Defense, and other U.S. federal agencies. World-leading staff, facilities, capabilities, and approach to inquiry and innovation have established PNNL as one of the premier national laboratories for science and technology.